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Western Regional Research Center

1975 - 1992

Food and Agricultural Patents for Licensing

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June 1992

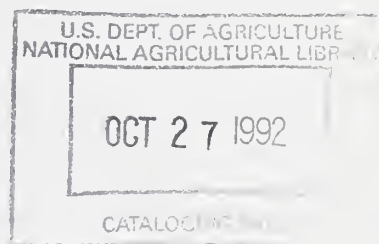
The USDA Patent License Program is an important part of the activities of the United States Department of Agriculture and directly benefits the public. Centers like the Western Regional Research Center, USDA often obtain patents based on the findings of their research. These patents are transferred to public use by patent licenses.

This booklet contains a current listing of United States Patents assigned to the Western Regional Research Center. The listing focusses mainly on recent food-related inventions. Included are patents involving food technology, process engineering, chemistry and genetic engineering.

The chronological listing presents the patents with potential for exclusive licensing first. An index is included for your convenience.

Please contact us directly for more information about the current status of these patents and for information on patent potential.

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License application packets can be obtained from

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Beltsville, MD 20705

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Patents with Exclusive Licensing Potential

FOOD AND INGREDIENTS

Method for reducing sodium content and simultaneously increasing potassium content of a food

Camirand W US Patent #4,503,082 85/03/05
 Abstract: The sodium content of a food is reduced and the potassium content simultaneously increased by a process wherein an aqueous solution of a sodium-containing food and an aqueous solution containing potassium ions are circulated on opposite sides of a cation exchange membrane for a time and at a rate sufficient to exchange at least a portion of the sodium and potassium ions.

Improved properties of rice flour for baking purposes

Bean M N, Nishita K D, Hoops E A US Patent #4,508,736 85/04/02
 Abstract: Rice flour obtained from medium and/or short grain rice is hydrated with water under selected conditions to improve baking performance and obtain improved quality rice-containing baked products. A novel formulation to prepare a rice flour layer cake free of wheat, milk and eggs is described.

2-acetyl-1-pyrroline and its use for flavoring food

Buttery R G, Ling L C, Juliano B O US Patent #4,522,838 85/06/11
 Abstract: The compound, 2-acetyl-1-pyrroline and its use in flavoring foods, particularly in imparting a "scented" rice flavor to foods, are disclosed.

Yeast strains genetically engineered to produce wheat gluten proteins

Greene F C, Anderson O D, Litts J C, Stiles J I, ARS, U Hawaii, Neill J D, U Hawaii US Patent #4,826,765 89/05/02
 Abstract: A strain of yeast *saccharomyces cerevisiae* has been developed which, when grown under defined culture conditions, will produce protein indistinguishable from wheat gluten protein. This new yeast strain was developed by introducing a specially constructed autonomously replicating extrachromosomal genetic element, gluten plasmid pay31, into the parent yeast strain. This plasmid is a circular dna molecule, constructed by enzymic fusion of the following elements: (1) the *e. coli* plasmid puc8 wherein the *ecori* site has been removed; (2) the autonomously replicating yeast sequence *ars1*; (3) the yeast *ura3* gene; (4) a modified yeast *iso-1-cytochromic* gene retaining the promoter region and transcription termination sequence, and wherein the protein coding sequences have been deleted and replaced with a synthetic *ecori* restriction site, the site at which the wheat gluten protein gene is cloned; and (5) a fragment of a wheat gluten protein gene which includes the amino acid coding region, translation initiation and termination sequence, and short flanking nucleotide sequences, but excludes transcription initiation and termination sequences. Wheat gluten protein synthesized by the new yeast strain can be used to supplement wheat and non-wheat flours for baked products and for use in diagnosis and treatment of illness in humans caused by wheat gluten proteins.

Coatings for substrates including high moisture edible substrates; applying protein and hydrophobic material emulsion; foods; storage stability

Krochta John US Patent #5019403 91/05/28
 Abstract: A method for coating substrates, including high moisture substrates and substrates having high moisture at the surface, with emulsions or suspensions of a water-soluble protein material and hydrophobic material. By adjusting the pH of the protein material in the emulsion or suspension to its isoelectric point in situ, that is, when the emulsion or suspension is in contact with the substrate, the protective properties of the

resulting film are improved. Substrates coated by the method showed greatly reduced moisture loss. The method provides a way to form stable films on substrates having moist surfaces. The method is particularly useful to protectively coat agricultural products, including edible high moisture products, which are subject to deterioration from moisture loss, respiration or oxidation.

Method for classifying wheat kernels as hard or soft

Glenn Gregory

US Patent #5056721

91/10/15

Abstract: A sectioning method is described for accurately and objectively classifying individual wheat kernels as hard or soft wheat. A kernel is cut to obtain a section having a thickness in the range of about 1.3 to 4.8 microns; if the section remains intact, the kernel is classified as hard, and if the section does not remain intact, the kernel is classified as soft. The method finds particular use for detection of lots of wheat where hard and soft varieties have been intermixed and for classifying breeding selections.

Method and composition of cooked tomato flavor

Buttery Ronald G, Teranishi Roy, Ling Louisa C, Turnbaugh J G US Patent #5,064,673

91/11/12

Abstract: A composition containing the compounds dimethyl sulfide, beta-damascenone, 3-methylbutanal, and 3-methylbutyric acid in particular proportions is used to impart or enhance the cooked tomato flavor of food products. In a preferred embodiment, the composition also contains 1-nitro-2-phenylethane, eugenol, and methional.

FOOD SAFETY

Method for detecting aflatoxin in almonds

Schade J E, King Jr A D

US Patent #4,535,248

85/08/13

Abstract: Aflatoxin contamination in almonds is detected by exposing almond kernels to long wave ultraviolet light and detecting the presence of aflatoxin as determined by violet-purple fluorescence. The method is particularly adaptable to automation to detect and sort out aflatoxin contaminated almonds.

Detection of agricultural contraband in baggage

Schatzki Thomas F

US Patent #4,539,648

Abstract: A radiant energy imaging system for selectively enhancing the image of objects having circular cross section to distinguish them from the image of objects having rectangular cross section, such objects being contained in a material having a different density-absorption coefficient product than the objects. In the invention, the gradient image of the spatially resolved transmitted intensity of the radiation is calculated and eroded to preferentially remove the edges of images of objects having rectangular cross section. The invention finds particular use in detecting agricultural contraband contained in baggage or parcels.

Monoclonal antibodies to soybean Kunitz trypsin inhibitor and immunoassay methods

Brandon David L, Bates Anne H, Freidman Mendel

US Patent #4,959,310

90/09/25

Abstract: Hybrid cell lines (hybridomas) which produce and secrete monoclonal antibodies with three distinct patterns of recognition are described. The first specificity pattern is defined by antibodies which (1) recognize Kunitz trypsin inhibitor (KTI), one of the principal protease inhibitors found in soybeans, but do not detect the Bowman-Birk inhibitors (BBI), the other major class of protease inhibitors in soybeans; (2) bind to native KTI isoforms a and b but do not react with KTI isoforms a and b which have been denatured by moist heat or alkaline treatment or which have been subjected to disulfide exchange; and (3) do not recognize native KTI isoform c. The second specificity pattern is defined by antibodies that (1) recognize KTI, but do not bind BBI; (2) bind native KTI isoforms a and c, but do not bind strongly to KTI isoforms a and c which have been denatured by moist heat or alkaline treatment or which have been subjected to disulfide exchange; (3) do not bind KTI isoform b; and (4) bind only weakly to KTI when KTI is complexed with trypsin or a similar enzyme. The third specificity pattern is defined by antibodies that (1) recognize KTI, but do not bind BBI; (2) bind equivalently to native KTI isoforms a, b, and c, but do not bind to KTI which has been denatured by moist heat or alkaline treatment or which has been subjected to disulfide exchange; and (3) bind equivalently to uncomplexed KTI and KTI complexed with

trypsin or a similar enzyme. Immunoassay methods using the monoclonal antibodies to analyze native KTI specifically in soyderived foodstuffs and in tissues of soybean plants, to determine isoform content of a sample, and to determine the amount of KTI complexed with trypsin in a sample are described.

Novel pyrrolizidine alkaloid

Elbein Alan D (U. Texas), Tropea J E . (U. Texas), Molyneux J US Patent #5,021,427 91/06/04

Abstract: The present invention involves a purified bioactive compound of the formula: (see drawing) wherein at least one of R1, R2, R3, and R4 are H or an acyl having less than about five carbon atoms. More specifically the preferred purified bioactive compound is (1R, 1R, 3R, 7S, 1aR)-3-hydroxymethyl-1,2,7-trihydroxypyrrolizidine.

High affinity monoclonal antibodies to Bowman-Birk Inhibitor and immunoassay methods

Brandon David L, Bates Anne H, Friedman M US Patent #5,053,327 91/10/01

Abstract: Hybrid cell lines (hybridomas) which produce and secrete high affinity monoclonal antibodies specific for Bowman-Birk Inhibitor (BBI) are described. High affinity antibodies to BBI are described that have one or more of the following additional characteristics: (1) they are specific to the active form of BBI, but do not bind with BBI which has been denatured by heat or disulfide exchange; (2) they do not react and bind with KTI; (3) they distinguish classical BBI from other BBI's including lima bean protease inhibitor; and (4) they bind BBI-protease complex, e.g., BBI- chymotrypsin. Immunoassay methods using the monoclonal antibodies to analyze BBI specifically in plant, animal or human tissue or fluid or foodstuffs and techniques for immunoaffinity binding of BBI are described.

INSECT CONTROL

Polybutylbenzylphenols and benzyl-3,4-methylenedioxybenzenes in insect population control

Jurd Leonard US Patent #4,342,777 82/08/03

Jurd Leonard US Patent #4,482,728 84/11/13

Abstract: Certain polybutylbenzylphenols and benzyl-3,4-methylenedioxybenzenes are useful for insect control especially as insect chemosterilants and oviposition inhibitors. The benzyl-3,4-methylenedioxybenzenes also find utility as growth inhibitors for mosquito larvae.

Dibutylorthobenzylmethoxybenzenes and dibutylorthocinnamylmethoxy-benzenes as mosquito larvae growth inhibitors

Jurd Leonard US Patent #4,391,828 83/07/05

Abstract: Novel dibutylorthobenzylmethoxybenzenes having the structure (see book for structure) wherein R is hydrogen, lower alkyl or lower alkoxy and novel dibutylorthocinnamylmethoxybenzenes are disclosed as growth inhibitors for mosquito larvae.

EXCLUSIVE LICENSE POTENTIAL

Patents Available for Non-Exclusive Licensing

FOOD AND INGREDIENTS

Preparation of stable protein concentrates from grain by-products

Saunders R M, Kohler G O, Conner M A, Edwards R H US Patent #3,859,451 75/01/07
 Abstract: Stable protein concentrates are prepared from wheat millfeed by a process which comprises blending the millfeed with aqueous alkali, separating a juice containing soluble protein and suspended starch and fat therefrom, and coagulating and separating a solid protein from the so-separated juice.

Process for preparing tomato juice of increased consistency

Miers Jackson R, Wagner Joseph R, Becker Robert US Patent #3,892,877 75/07/01
 Abstract: Process for preparing tomato juice of high consistency which has the feature that consistency is not developed until a late stage in the total process, whereby to obtain savings in power consumption and other advantages. Raw tomatoes are macerated and heated, the macerate is acidified, and the juice extracted from the acidified macerate, all these steps being done under conditions which avoid damage to individual fruit cells. Then, the juice is homogenized by applying vigorous and repeated shearing action to cause extensive damage to the fruit cells and thereby increase the consistency of the fruit.

Water leaching pre-fried potato slices

Weaver M L, Nonaka M US Patent #3,934,046 76/01/20
 Abstract: The invention enables the production of fried potato products of greatly improved texture, flavor, and color from raw stock that exhibits excessive browning tendencies and which would normally yield fried products of excessively dark color. Typically, pieces of raw potato are pre-fried in edible oil for a short period, then leached with water. The leached pieces may be further processed in various ways, e.g., finish-fried, or par-fried and then refrigerated for distribution to the consumer or food service operator.

Preformed potato products

Weaver M L, Hautala E, Nonaka M US Patent #3,946,116 76/03/23
 Abstract: Potatoes are converted into convenience food products, using techniques which provide advantages over customary operations. Example: potatoes are cooked and mashed. The mash is shaped into strips which are then treated with hot air to case-harden their surfaces. The resulting intermediates may be fried directly or held in frozen or cold storage for future use. On frying, they yield products which have the taste, appearance, color, and texture of high-quality conventional french fries plus added advantages of higher solids content, lower fat content, and no tendency to get limp.

Process for peeling fruits and vegetables

Huxsoll C C, Weaver M L, Graham R P US Patent #3,950,556 76/04/13
 Abstract: System for peeling fruits or vegetables wherein the peel is loosened by a double treatment with lye, each treatment being followed by a holding period. After the second holding period, the peel is removed directly, that is, without any application of radiant or other heat.

Preparation of soluble edible protein from leafy green crops

Bickoff E M, Defremery D., Edwards R H, Knuckles Benny E, Kohler G O, Miller R E US Patent #3,959,246 76/05/25
 Abstract: Juice obtained from alfalfa or other leafy green crops is processed to isolate a cream-colored protein fraction which is soluble, odorless, bland (essentially tasteless) and useful for human nutrition. the juice is

first treated to remove chloroplastic proteins, chlorophyll, carotenoids, and lipids. the residual juice containing the desired cytoplasmic proteins is treated by novel procedures-e.g., acid precipitation in the cold or by membrane filtration followed by acid precipitation at ambient temperature-to isolate the soluble bland protein.

Process for the production of bicyclo decenone derivatives

Leiterig T J, Gaudagni D G, Teranishi R

US Patent #3,962,339

76/06/08

Abstract: Limonene is epoxidized and the product reacted with BF₃-etherate to produce dihydrocarvone which is condensed with 3-peten-2-one to give a mixture of the 5,6-dimethyl-9-isopropenyl and 5,10-dimethyl-7-isopropenyl derivatives of bicyclo [4,4,0] dec-1-en-3-one. The mixture is useful as an odorant to provide a woody aroma in soaps, cosmetics, toiletries, etc. Individual isomers may be separated from the mixture by such techniques as preparative glc.

Peeling fruits and vegetables by multiple heatings and coolings

Weaver M L, Huxsoll C C, Graham R P

US Patent #3,982,037

76/09/21

Abstract: Novel process for peeling fruits and vegetables which yields maximum skin removal coupled with minimum weight loss. The primary feature of the invention is loosening the skin by applying multiple heat treatments, each followed by a cooling step. Each of the heatings is ineffective by itself to attain loosening of the skin, but the multiple heatings in aggregate and in conjunction with the coolings yield effective loosening of the skin without cooking the flesh of the fruit or vegetable being peeled.

Method for texturizing proteins

Bernardin John E

US Patent #3,993,794

76/11/23

Abstract: A texturized protein is formed by a process wherein a cereal grain protein capable of forming microfibrillar aggregates is first dissolved in water, and the ph of the solution is adjusted to 5.0-6.0. then, the ionic strength of the solution is adjusted to 0.004-0.010 to aggregate the protein molecules into microfibrils, which are subsequently aligned in a parallel arrangement by application of a unidirectional shear thereto. Finally, an oscillating shear is applied to the aligned microfibrils, causing them to collide and thereby become texturized.

Preparation of soluble edible protein from leafy green crops

Bickoff E M, Fremery D, Edwards R H, Knuckles B E Kohler G O, Miller R E

US Patent #4,006,078

77/02/01

Abstract: Juice obtained from alfalfa or other leafy green crops is processed to isolate a cream-colored protein fraction which is soluble, odorless, bland (essentially tasteless) and useful for human nutrition. The juice is first treated to remove chloroplastic proteins, chlorophyll, carotenoids, and lipids. The residual juice containing the desired cytoplasmic proteins is treated by novel procedures-e.g., acid precipitation in the cold or by membrane filtration followed by acid precipitation at ambient temperature-to isolate the soluble bland protein.

Preparation of puffed fruit

Popper Karel, Schultz William G, Camirand Wayne M, Hautala Earl, Robertson George H, Crawford Ladell, Finkle, Bernard

US Patent #4,055,675

77/10/25

Abstract: Bite-sized pieces of fruit are prepared by a process wherein the the fruit is partially dehydrated, puffed, and then heated to obtain a crisp outer surface thereon. The fruit is puffed by immersing it in a pool of liquid carbon dioxide under pressure and then rapidly releasing the pressure.

Preparation of protein concentrates from whey and seed products

Saunders Robert M, Kohler George O

US Patent #4,064,283

77/12/20

Abstract: Stable protein concentrates are prepared from whey and seed products by a process which comprises mixing the seed product and the whey, adding alkali to the mixture, and separating a juice containing soluble protein and suspended starch and fat therefrom. Then, the juice is treated to precipitate a protein concentrate either by adding acid to pH 5-6 and heating to 85-95 degrees C. or by adding acid to pH 3-4 and then adding sodium hexametaphosphate.

Immobilization of enzymes on keratin

Stanley W L, Watters G G, Chan B G

US Patent #4,069,106

78/01/17

Abstract: Insolubilized but active enzymes are prepared by mixing an aqueous solution of the enzyme with reduced keratin-containing material. The invention is particularly useful for insolubilizing sulfhydryl-containing enzymes such as urease.

Preparation of protein isolates from safflower seeds

Betschart Antoinette A

US Patent #4,072,669

78/02/07

Abstract: Protein isolates with improved properties are prepared from safflower seeds by applying to the seeds the following steps: 1) pressing the seeds to remove the oil therefrom, 2) extracting the press cake with hexane at 20-30 degrees C. to remove residual oil, 3) drying the so-extracted press-cake 20-30 degrees C. 4) treating the press-cake with aqueous alkali at pH8-10, 5) separating a juice from the press cake and acidifying the juice of pH 6.0, and 6) separating a protein isolate from the juice and washing and drying it.

Process for improving baking properties of unbleached cake flour

Hanamoto Max M (Deceased), Bean M M

US Patent #4,157,406

79/06/05

Abstract: Unbleached cake flour is heated at a temperature of 49-93 degrees C. for 1 hr. to ten weeks to improve its baking properties. Starch is subjected to controlled swelling by heating in the presence of excess moisture at a temperature of 54-71 degrees C. Either treated material or mixtures of both may be substituted for unbleached flour in high-sugar baked good mixes to obtain improved baking properties such as texture, grain, volume, and eating quality.

Method of removing corn from the cob

Robertson G H, Lazar M E, Krochta J M, Farkas D F

US Patent #4,107,340

8/15/78

Inventors BOMBEN JOHN L

Abstract: Whole kernels of corn are removed intactly from the cob by a method wherein the cob is first split longitudinally. Then, a force is applied to the kernels to remove them from the cob. The so-separated whole kernels may then be processed in conventional manner.

Process for preparing precooked fruits and vegetables

Weaver Merle L, Ng Keng C

US Patent #4,194,016

80/03/18

Abstract: Precooked fruits or vegetables are prepared by a process wherein the fruits and vegetables are cooked to their centers at a temperature below the temperature at which sloughing of the surface tissue would occur if the fruits or vegetables were cooked to their centers at that temperature, i.e. below about 81-83 C. Following the cooking procedure the fruits or vegetables are heated in air and are then preserved.

Method of protecting proteins for animal feed

Friedman Mendel

US Patent #4,203,892

80/05/20

Abstract: Proteinaceous feed material is contacted with certain compounds to render it more suitable for ruminant animals. The so-treated proteinaceous material is resistant to degradation in the rumen of the animals but is readily degraded and digested in the intestines thereof.

Process for improving baking properties of unbleached flour

Bean Maura M, Hanamoto Max M (Deceased)

US Patent #4,259,362

81/03/31

Abstract: Unbleached cake flour is heated at a temperature of 49 - 93 degrees C. for 1 hour to ten weeks to improve its baking properties. Starch is subjected to controlled swelling by heating in the presence of excess moisture at a temperature of 54 - 71 degrees C. Either treated material or mixtures of both may be substituted for unbleached flour in high-sugar baked good mixes to obtain improved baking properties such as texture, grain, volume, and eating quality. Unbleached bread flour is simultaneously ground and heated and then subjected to three air-classification steps to obtain a flour suitable for use in high-sugar baked goods.

Method of peeling fruits and vegetables with carboxylic acids

Schultz William G, Neumann Harry J, Schade John E

US Patent #4,260,638

81/04/07

Abstract: Novel process for peeling fruits and vegetables which yields maximum skin removal coupled with minimum loss of flesh. The fruit or vegetable is contacted with an aqueous dispersion of a 3 - 18 carbon carboxylic acid at elevated temperatures for a time sufficient to loosen the peel, which can then be removed by mechanical action.

Apparatus for removing corn from cob

Robertson George H, Farkas Daniel F

US Patent #4,318,415

82/03/09

Abstract: An apparatus for removing intact kernels of corn from the cob is described. The apparatus of the invention includes a frame with friction means attached thereto for removing whole, intact kernels of corn from the cob. Also attached to the frame are means for driving the friction means and means for maintaining the friction coefficient of the friction means. In the apparatus of the invention an ear of corn is contacted with the driven friction means so that the frictional force pushes the kernels at or near the natural abscission layer to detach the kernels intact. The means for maintaining the friction coefficient of the friction means maintains the friction coefficient at a level sufficient to detach intact kernels and preferably at a level which maximizes the efficiency of kernel detachment.

Mushroom growing medium

Kurtzman Jr Ralph H

US Patent #4,333,757

82/06/08

Abstract: A cellulosic medium for growing mushrooms is disclosed. A liquid mixture containing sources of soluble carbon and nitrogen is fermented and mixed with cellulosic material. The so-treated cellulosic material is held at a temperature and for a time sufficient to allow substantial reduction of organisms damaging to mushroom culture. The cellulosic material then is cooled to a temperature suitable for spawning.

Heating of proteinaceous liquids

Edwards Richard H, Kohler George O

US Patent #4,421,682

83/12/20

Abstract: A method of raising the temperature of a liquid containing heat coagulable proteins above the coagulation temperature of the proteins to coagulate them using a heat exchanger to transfer heat from the heat source to the liquid without contact between the liquid containing the uncoagulated heat coagulatable protein and the heat exchanging surface is described.

Dehydration of ethanol

Robertson George H

US Patent #4,556,460

85/12/03

Abstract: A process and apparatus for dewatering an ethanol-water solution is disclosed wherein a carrier gas is used to vaporize the solution and transfers vapors to a sorbent where water is sorbed in preference to ethanol. The invention is particularly suited for small-scale production of fuel-grade ethanol for blending with gasoline.

Method for predicting the acceptability of coarsely ground beef

King A D, Nissos-Stalder P S

US Patent #4,707,444

87/11/17

Abstract: A method for predicting the future acceptability of coarsely ground beef after regrinding and aerobic storage under specified conditions of time and temperature by measurement of the concentration of lactic acid in the sample is described. The method includes the steps of setting up a data base which relates the values of the initial concentration of lactic acid in samples of coarsely ground beef to odor acceptability of the samples after regrinding and aerobic storage for specified conditions of time and temperature, and measuring the initial lactic acid in the test sample and predicting future acceptability with reference to the data base. Based on the prediction value, a decision is made whether the beef is acceptable for the intended purpose.

FOOD SAFETY

Cinnamyl phenol antimicrobial agents

Jurd L, King Jr A D, Stanley W L

US Patent #3,865,748

75/02/11

Abstract: Substances which are subject to microbial spoilage are preserved by addition of a cinnamyl phenol, e.g., 2- or 4-cinnamyl phenol, 2-methoxy-4-cinnamyl-phenol, 2-cinnamyl-5-methoxy-quinol, etc.

Dihydrocinnamyl phenols useful as antimicrobial agents

Jurd Leonard, Stevens K L, King Jr A D

US Patent #3,867,584

75/02/18

US Patent #3,915,889

75/10/28

US Patent #3,944,415

76/03/16

Abstract: Substances which are subject to microbial spoilage are preserved by addition of a dihydrocinnamyl phenol, e.g., dihydro-2-cinnamyl (-phenol or -4-methylphenol), dihydro-4-cinnamyl-phenol, etc.

Removing heavy metal ions from water

Randall J M, Hautala E, Waiss Jr A C, Kuhnle J A

US Patent #3,925,192

75/12/09

Abstract: Heavy metal ions are removed from water by contact with formaldehyde-modified nut waste or tree bark.

Antimicrobial agents and use thereof

Jurd L, King Jr A D, Stanley W L

US Patent #3,936,393

76/02/03

Abstract: Substances which are subject to microbial spoilage are preserved by addition of a cinnamyl phenol, e.g., 2- or 4- cinnamyl phenol, 2-methoxy-4-cinnamyl-phenol, 2-cinnamyl-5-methoxy-quinol, etc.

Mixture of cinnamylphenols and normally spoilable substances

Jurd L, King Jr A D, Stanley W L

US Patent #3,951,820

76/04/20

Abstract: Substances which are subject to microbial spoilage are preserved by addition of a cinnamyl phenol, e.g., 2-cinnamyl-phenol, 4-cinnamyl-phenol, 2-methoxy-4-cinnamyl-phenol, 2-methoxy-4-cinnamyl-phenol, 2-cinnamyl-5-methoxy-quinol, etc.

Inhibiting the formation of lysinoalanine

Finley John W, Snow John T, Friedman Mendel

US Patent #4,035,349

77/07/12

Abstract: Method for inhibiting the formation of lysinoalanine when proteinous material is treated by alkali, which comprises conducting the alkali treatment in the presence of a compound selected from the group consisting of sulfhydryl-containing amino acids, their esters, and amides.

INSECT CONTROL

Mosquito larvicides and growth inhibitors

Jurd Leonard	US Patent #3,946,047	76/03/23
Stevens K L, Jurd Leonard	US Patent #3,954,991	76/05/04
Jurd Leonard	US Patent #3,973,040	76/08/03
Stevens K L, Jurd L	US Patent #3,972,897	76/08/03
Jurd Leonard	US Patent #3,939,273	78/02/17
Jurd Leonard	US Patent #3,946,047	76/03/23
Jurd Leonard	US Patent #4,082,814	78/04/04
Abstract: Alkylcinnamylphenols and limonene condensed with sesamol under aqueous acidic conditions are used as mosquito larvicides and growth inhibitors.		

Polybutyl-2-cinnamylphenols as insect anti-procreants

Jurd Leonard	US Patent #3,959,489	76/05/25
Abstract: New polybutyl-2-cinnamylphenols, particularly 4,6-di-t-butyl-2-cinnamylphenol, are useful for insect control and especially as insect chemosterilants and oviposition inhibitors.		

Cinnamyl-sesamol derivatives as insect chemosterilants

Jurd Leonard	US Patent #3,968,234	76/07/06
Abstract: New cinnamyl-sesamol derivatives, for example, 3,4-methylenedioxy-cinnamylbenzene, 2-methoxy-4,5-methylenedioxy-cinnamylbenzene, 2-ethoxy-4,5-methylenedioxy-cinnamylbenzene, and 2-allyloxy-4,5-methylenedioxy-cinnamylbenzene are useful for insect control, particularly as insect chemosterilants.		

Repellents for the confused flour beetle

Jurd Leonard	US Patent #3,993,782	76/11/23
Abstract: Alkyl-substituted 2-benzylphenols are disclosed to be useful for repelling the confused flour beetle (<i>Tribolium confusum</i>).		

Process for inhibiting the deterioration of wood due to marine boring organisms via the use of dibutylbenzylphenol

Jurd Leonard, Bultman John D	US Patent #4,029,818	77/06/14
Abstract: Substances, particularly wood, which are normally subject to deterioration due to marine borers are preserved by applying to the substance a dibutylbenzylphenol.		

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potato, fried products N-1

potato, leaching N-1

potato, preformed products N-1

protein, alfalfa N-1, N-2

protein concentrates N-1

protein, degradation N-3

protein, heating N-4

protein, safflower N-3

protein, wheat gluten in yeast E-1

protein, whey N-2

puffed fruit N-2

pyrrolizidine alkaloid E-3

R

rice flavor E-1

rice flour E-1

S

sodium E-1

soft wheat, classification E-2

soybean Kunitz trypsin inhibitor E-2

sweet corn, intact kernels N-3, N-4

T

texturizing proteins N-2

tomato, flavor cooked E-2

tomato, juice consistency N-1

U

unbleached flour N-3

W

wheat classification E-2

woody aroma N-2

Y

yeast, genetically engineered E-1







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